

Date: Thu, 29 Apr 93 17:05:35 PDT
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V93 #518
To: Info-Hams

Info-Hams Digest Thu, 29 Apr 93 Volume 93 : Issue 518

Today's Topics:

 2M HT FOR SATELLITE WORK
 Another AM Question (2 msgs)
 Beware Tatsuya Kawasaki
 Differential equations and power.
 Fast connect/disconnect (in/out) mobile ri
 Feedback needed, Outbacker or Isoloop users
 Possible to parallel x-formers??
 Two-Line Orbital Element Set: Space Shuttle
 V. Tube Info.
 WANTED : FT5100 MODS
 What is circular polarization?

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 29 Apr 93 12:09:59 PST
From: usc!venice!atlas!rwardburg@network.UCSD.EDU
Subject: 2M HT FOR SATELLITE WORK
To: info-hams@ucsd.edu

I HAVE HEARD THAT IT IS POSSIBLE TO SEND CW BY KEYING THE MIC INPUT OF A 2M HT.
THIS WOULD ALLOW AN UPLINK TO ONE OF THE RS SATELLITES IN MODE A. HAS ANYONE
TRIED THIS? TNX BOB KOLLO

Date: Thu, 29 Apr 1993 19:37:14 GMT

From: mvb.saic.com!unogate!news.service.uci.edu!usc!elroy.jpl.nasa.gov!sdd.hp.com!
hpscit.sc.hp.com!news.dtc.hp.com!srngenprp!alanb@network.UCSD.EDU
Subject: Another AM Question
To: info-hams@ucsd.edu

mhatther@hatter.uucp (mhatther@hatter.uucp) wrote:

: > Alan Bloom (alanb@sr.hp.com) wrote:
: > : >Lyle Kraft (lkraft@core.rose.hp.com) wrote:
: > : >: Suppose you generate a single carrier signal with no modulation, and
: > : >: feed this up to your x-element beam. So far, you are radiating a
: > : >: signal that has zero bandwidth in some fixed direction. OK, now
: > : >: say you rotate your antenna at a rate of, say, 1000 revolutions per
: > : >: second. To a distant observer, will this signal now appear to have
: > : >: sidebands spaced 1 KHz away from the carrier since he now only sees
: > : >: a carrier that "bursts" at a 1KHz rate?
: > : >
: > : >Yes

: No, what he sees is (assuming antenna is far away, i.e. a point source) just
: a steady signal. It is not really "modulated". Imagine what a simple
: diode detector receiver would get --- DC, a steady signal.!!

<Flame on:>

It's a shame that people don't check their facts with a more-knowledgable
colleague before they confidently assert them on the net.

<Flame off>

If the signal is varying in amplitude, then it is modulated. It doesn't
matter whether the amplitude variation is caused by an AM modulator,
a rotating antenna, or any other means -- sidebands will be generated.
It is impossible to vary the amplitude (or frequency or phase) without
generating sidebands.

: > : >: Remember, we are still only
: > : >: generating a single, unmodulated carrier. Are the "sidebands" a
: > : >: figment of the receiver?

: There are no sidebands -- see below.

Wrong

: > : >No, they are really there. It doesn't matter how you modulate the
: > : >carrier,

: Yes, it does matter. For sidebands to exist, one must non-linearly modulate
: a carrier.

Wrong

: But you don't really have "modulation". All you have is the _addition_ of
: a signal (1KHz) to another (carrier) by physical means (again assuming point
: sources and no near-field effects of phase or frequency change) rather than
: electrical means.

It is not addition, but multiplication. The rotating antenna changes the
amplitude of the received signal. (When the antenna is pointed at the
receiver, the signal is strong; when the antenna is pointed away, the
signal is weak.)

: > As far as who sees these sidebands, let me modify the scenario. Say
: > you now have an airborne receiver that circles the transmitting
: > antenna in sync with the beam. Does the flying receiver see these
: > sidebands (assuming the receiver sees no change in amplitude during
: > the trip around)?

: Again, there are no sidebands. Same scenario.

Wrong. The flying receiver would see sidebands at the frequency of its
revolution rate. (A VERY fast airplane!)

: An therein lies the answer. What intelligence is really communicated by
: switched on/off carrier (or a varying carrier as in your example)?
: The answer is NONE... unless an additional signal is introduced (BFO)
: to recreate the intelligence.

Of course information is communicated by switching on/off a carrier.
We've been sending Morse code by radio for 70+ years.

: ... intelligence REQUIRES bandwidth ... the more intelligence
: (higher baud rate, wide frequency transmission, color TV) the wider the
: bandwidth. Zero bandwidth = zero intelligence;

Correct

: in other words you may be
: changing what someone "sees" by rotating your antenna, but you didn't
: pass along any useful info.

Sure you do. You are communicating the rotation rate and phase of the
transmitting antenna. You could use these parameters to communicate
data if you wanted to.

AL N1AL

Date: Thu, 29 Apr 1993 20:25:49 GMT
From: news.acns.nwu.edu!casbah.acns.nwu.edu!rdewan@network.UCSD.EDU
Subject: Another AM Question
To: info-hams@ucsd.edu

In article <C694E1.Dtr@icon.rose.hp.com> lkraft@core.rose.hp.com (Lyle Kraft) writes:

>Rajiv Dewan (rdewan@casbah.acns.nwu.edu) wrote:

>: >

>: >Consider this from the receiver's perspective. Whether you modulate

>: >the energy being *received* by

>: > * by rapidly turning the transmitter on and off

>: > * or by rotating the transmitted beam of energy in and out of receiving

>: > antenna's range,

>: >the effect is the same.

>: >

>: >In fact, the Doppler directions finding units use this principle and achieve

>: >it by rapidly rotating (electronically) antennas.

>: >

>: >

>

> Uh, no. This is different. The Doppler DF acts as an antenna which
> is located on the outer edge of a rotating wheel. During half the
> rotation the antenna APPROACHES the source and during the other half
> it RECEDES from the source, and this is what creates the Doppler
> effect. In our discussion, the antenna is located at the axis
> of the "wheel" and its distance does not change over time, just
> the direction at which it is pointing.

>

Well, may be I need to be more explicit. When the receiving antenna in the Doppler unit is electronically rotated it imposes a 1Kc FM on the incoming signal (i.e. it seems, for all intents and purposes, including sidebands) to be like a FM signal with 1KHz modulating frequency. Where did these sidebands come from??? It is these 'anomalous' side bands that I was referring to in my example.

Or consider a bystander watching a train go by blowing its whistle. If he were to monitor the whistle on a spectrum analyzer, he would see a peak slowly move and some sidebands that are a result of the receiving process. These sidebands would result from appearance and disappearance of the signal and their offset would depend on the speed of the train and the s/n ratio of the spectrum analyzer. But if this spectrum analyzer were on board the train, you would not see the effect. Is this effect a figment of the receiver???

Best Regards

Rajiv
aa9ch

Date: Thu, 29 Apr 1993 20:32:17 GMT
From: sdd.hp.com!swrinde!cs.utexas.edu!zaphod.mps.ohio-state.edu!uwm.edu!caen!
destroyer!newsrelay.iastate.edu!news.iastate.edu!vincent2.iastate.edu!
tewheele@network.UCSD.EDU
Subject: Beware Tatsuya Kawasaki
To: info-hams@ucsd.edu

Be careful before you sell anything to tatsuya@zapotec.math.byu.edu.

More than a month ago I negotiated the sale of my Icom 2SAT to him. I shipped the unit to him 30 days ago today. Today I got a letter from hi wanting \$20 because he had to have some repair done on the rig.

First, there was nothing wrong with that radio when I sold it to him. That was possibly the best used HT sold by any ham to another barring unopened units. I had owned the radio for almost 2 years without a problem. Suddenly, after I sell it, it has some mysterious "tx/rx problem" that I "must have known about."

Actually, no, it never had a problem when I owned it. The only reason I sold it was because I bought a new Yaesu FT-530.

To top it all off, a friend of mine here at Iowa State sold this same guy an Icom 02AT about a year ago. Amazingly, Mr. Tatsuya Kawasaki also complained to my friend about some problem the 02AT had, and demanded \$20 back. I don't know if this is his idea of negotiating his best price, but I think something stinks here...

Anyway, my point is... Beware if you are conducting negotiations with Mr. Kawasaki, because he may suddenly complain to you about some problem your equipment had, and demand cash.

Luckily, my friend here warned me when he heard the name of the guy I was selling my radio to, and I sold the radio by cash-only COD. My friend got stuck because Mr. Kawasaki refused to let his check clear (i.e. not enough cash in the account) until my friend sent him \$20 back.

Just a friendly warning...

If anyone else has had problems like this, let me know!
Thanks!

73,
Todd Wheeler NONUM
tewheele@iastate.edu

Date: 29 Apr 93 15:16:30 -0600
From: dog.ee.lbl.gov!overload.lbl.gov!agate!howland.reston.ans.net!
sol.ctr.columbia.edu!hamblin.math.byu.edu!yvax.byu.edu!physc1.byu.edu!
peterson@network.UCSD.EDU
Subject: Differential equations and power.
To: info-hams@ucsd.edu

In article <1993Apr28.163220.6374@hemlock.cray.com>, dadams@cray.com (David Adams) writes:

> I have been reading through the licence manuals and...
>
> Durring the disscussion of how current leads voltage in an inductor
> by a phase angle of 90deg, It is apparent that there are a few
> differential equations lying just below the surface here, that might
> help explain the subject to a mathophile like my self. Have any of
> you ever seen the subject presented that way? Does it lead to
> a mathimatical explaination of how phase angles are calculated?

Actually, the easiest way to understand the phase angles is by the engineering method (my terminology). The total impedance of the load is $X_t = R + i\omega L - i/(\omega C)$ which is nicely represented represented on a graph by using the real part (R) on the x axis and the imaginary part ($\omega L - 1/(\omega C)$) on the y axis (by the way, $\omega = 2\pi \times \text{frequency}$). If we do this then the phase angle can be found real easy (and visualized easily) by just plotting the x and y values to find the endpoint of the impedance vector. You then find that the tangent of the phase angle is given by $(\omega L - 1/(\omega C))/R$ - inductive load gives a positive phase angle, capacitive load gives negative, resistive gives angles near 0. (I hope I got all the signs right here - I know I'll get flamed if I didn't).

>
> How are the equations usually stated?
>
> "Energy is stored in the magnetic field of an inductor when current
> increases through it..."
>
> Energy = $K \times I^2$?

Energy = $E = 0.5 \times L \times I^2$

>
> What symbol is used for energy? Does the constant K relate to the inductance?
> What other factors would it relate to?

>
> "... and in the electric field of a capacitor when voltage across it
increases..."
>
> Energy = $K2 * E'$

Energy=E=0.5*Q*Q/C=0.5*C*V*V

>
> Intuition tells me that K2 must relate to the characteristics of the capacitor.
>

Bryan Peterson KB7TEW
peterson@phyc1.byu.edu

Date: 29 Apr 1993 20:05:31 GMT
From: sun-barr!news2me.EBay.Sun.COM!exodus.Eng.Sun.COM!oversteer!
wdh@decwrl.dec.com
Subject: Fast connect/disconnect (in/out) mobile ri
To: info-hams@ucsd.edu

GC Electronics makes a small mount that I find very suitable for a
VHF mobile unit. It is about 4" square by 1/2" thick. It has six
electrical contacts that I use for power (2 per polarity) and speaker.
There is no connector for the antenna but I just use the PL-259/239 connector.
Removal requires unscrewing the antenna connector and simply pulling the
rig forward.

This makes it very easy to move my one mobile rig between two cars.
The fixed portion is quite thin. I attach this to the underside of
the dashboard in my cars.

I can bring in the GC part number info on this mount.

I envision making an adapter for my HT so it can be semi-permanently
attached to a slide mount. This would allow easy installation in each
of the cars as well. [Purists please disregard I said this].

...Dennis Henderson N6TTW

Date: 29 Apr 1993 18:42:28 GMT
From: topaz.bds.com!topaz.bds.com!ron@uunet.uu.net
Subject: Feedback needed, Outbacker or Isoloop users
To: info-hams@ucsd.edu

The outbacker is just fine as a mobile antenna, but I'd not recommend it for base use. The isoloop would be better (though I don't have one). If you have vertical space, I'd recommend an R7. I've got one and it certainly works much better than the outbacker in my car. The outbacker really gets crappy on 40 and 80 as you'd expect. Works great on 20. My mobile rig doesn't do the warc bands so I don't know about those.

-Ron

Date: Thu, 29 Apr 1993 20:04:09 GMT
From: elroy.jpl.nasa.gov!sdd.hp.com!col.hp.com!news.dtc.hp.com!srigenprp!
alanb@ames.arpa
Subject: Possible to parallel x-formers??
To: info-hams@ucsd.edu

Alan Malkiel (exualan@exu.ericsson.se) wrote:

: In the never ending quest to pinch a penny I am trying to avoid
: buying a 18V, 20Amp transformer, for my future 13.8V power supply.

: In the junk box sit 2 different 10Amp (appx.), 18V (appx.) used
: transformers. The question: Can I wire them in parallel? If so,
: which is better, before or after the bridge rectifier (obviously,
: if after, then I will need 2 bridges). Also, how much difference
: will a volt or 2 in the secondary make? I do have access to the
: windings so adjustments are possible.

If you wire them directly in parallel, the one with the slightly higher voltage will supply most of the load current. Worse than that, during the non-charging portion of the 60 Hz sine-wave cycle, it will actually drive current in the wrong direction through the lower-voltage winding.

Using a separate rectifier bridge for each transformer will prevent reverse current. To force equal currents through each transformer, add a small-value resistor in series with the higher-voltage winding. Adjust the value for equal currents (or desired current ratio) from the two windings under max load condition. This adjustment might be easier if you put resistors in series with BOTH windings.

By the way, the output voltage drop caused by the resistors will be greater than average load current times R, because the current into the filter caps flows in short high-current pulses at peaks of the 60 Hz sine wave. In other words, don't make the resistance too large.

AL N1AL

Date: Thu, 29 Apr 1993 22:27:50 GMT
From: dog.ee.lbl.gov!overload.lbl.gov!agate!howland.reston.ans.net!
darwin.sura.net!haven.umd.edu!cs.umd.edu!afterlife!blackbird.afit.af.mil!
tkelso@network.UCSD.EDU
Subject: Two-Line Orbital Element Set: Space Shuttle
To: info-hams@ucsd.edu

The most current orbital elements from the NORAD two-line element sets are carried on the Celestial BBS, (513) 427-0674, and are updated daily (when possible). Documentation and tracking software are also available on this system. As a service to the satellite user community, the most current elements for the current shuttle mission are provided below. The Celestial BBS may be accessed 24 hours/day at 300, 1200, 2400, 4800, or 9600 bps using 8 data bits, 1 stop bit, no parity.

Element sets (also updated daily), shuttle elements, and some documentation and software are also available via anonymous ftp from archive.afit.af.mil (129.92.1.66) in the directory pub/space.

STS 55

1 22640U 93 27 A 93119.24999999 .00041555 00000-0 12437-3 0 90
2 22640 28.4657 249.3697 0008512 260.9747 152.1416 15.90732913 425

--

Dr TS Kelso Assistant Professor of Space Operations
tkelso@afit.af.mil Air Force Institute of Technology

Date: 29 Apr 93 17:43:20 GMT
From: usc!cs.utexas.edu!swrinde!sgiblab!wetware!spunky.RedBrick.COM!psinntp!
psinntp!gdc!gallaghe@network.UCSD.EDU
Subject: V. Tube Info.
To: info-hams@ucsd.edu

I recently got a Marconi Signal Generator. One of the tube has the following part number - TD03-10E. Anybody have an idea what type of tube this is and who might have one? The generator model number is TF 1066B/6.

Thanks in advance,

Rob - KD1MF

--

★

★

* Robert Gallagher *
* email - gallagher@gdc.com *
* tele: (203) 574-1118 ext. 6442 *
* *

Date: 29 Apr 1993 17:08 CDT
From: usc!cs.utexas.edu!tamsun.tamu.edu!zeus.tamu.edu!pci7787@network.UCSD.EDU
Subject: WANTED : FT5100 MODS
To: info-hams@ucsd.edu

Please send them to :PCI7787@TAMVENUS.TAMU.EDU or tell me where i can
find them (FTP site). Thank you in advance.

73's de 5B4ACP

Date: 29 Apr 93 15:51:34 GMT
From: dog.ee.lbl.gov!overload.lbl.gov!agate!howland.reston.ans.net!
zaphod.mps.ohio-state.edu!cs.utexas.edu!convex!news.utdallas.edu!corpgate!bnrgate!
bnr.co.uk!uknet!mcsun!dkuug!dde!jwj@network
Subject: What is circular polarization?
To: info-hams@ucsd.edu

hello Chris

cvm@nauvax.ucc.nau.edu (Chris Michels) writes:

>I understand horizontal and vertical porlarization of an antenna or RF
>signal. I am just getting interested in satelllites and don't understand
>circular polarization.

Imagine that the antenna is shaped like a corkscrew. A spiral of wire with size
comparable to the wavelength of the signal you want it to emit.
This type of antenna is called a Helix antenna and it generates a signal which
is circularly polarized. You can imagine that the propagation of the signal is
a continuation of the spiral which the antenna started.

> What is circular polarization, and right or
>left circular polarization?

Just like screws, helix antennas can turn either of two ways. Left or Right,
couter clockwise and clockwise. The signal of the helix which turns left
is called left circlarly polarized, and likewise the right turning one

generates a signal which is right circularly polarized.

Just like vertical and horizontal polarization, there is a very good isolation between signals on the same frequency with left and right polarization. This means that you can use the same frequency with both left and right polarization on the same satellite at the same time with good signal separation. (this is also possible with horizontal and vertical polarization).

If a helix antenna has dimensions that are much smaller than the signal-wavelength, the helix is operating in normal mode and generates a vertically polarized signal (when held vertical).

That means that the signal does not travel in the direction of the spiral, it travels along the normal (90 degrees) from the spiral direction.

This version of the helix antenna is used for shorter antennas for portable radios, you may know the short flexible rubber antennas used with portables.

You get a good impedance match and a pretty good signal from the normal mode helix, at least compared to the size of the antenna.

A 1/4 wavelength antenna will always give a better signal than the normal mode helix does, but may be impractical due to the size.

I hope this actually helped you understand circular polarization. I am not to sure the meaning came out all that well :-)

Greetings from Denmark
73 de OZ8ACE
Jesper Wolf Jespersen
jwj@dde.dk

Date: Thu, 29 Apr 1993 17:32:08 GMT
From: [sdd.hp.com!zaphod.mps.ohio-state.edu!uwm.edu!linac!att!cbnewsc!
k9jma@decwrl.dec.com](mailto:sdd.hp.com!zaphod.mps.ohio-state.edu!uwm.edu!linac!att!cbnewsc!k9jma@decwrl.dec.com)
To: info-hams@ucsd.edu

References <[1qlh1e\\$kj3@umcc.umcc.umich.edu](mailto:1qlh1e$kj3@umcc.umcc.umich.edu)>, <1rd74mINNpmc@news.aero.org>,
<wb9omc.736022497@dynamo.ecn.purdue.edu>wsc
Subject : Re: "Busting" Jammers

In article <wb9omc.736022497@dynamo.ecn.purdue.edu> wb9omc@dynamo.ecn.purdue.edu
(Duane P Mantick) writes:

>obrien@Aero.org (Michael O'Brien) writes:

>>is still blaring away. All the documentation and cooperation
with the ARRL you

>>could ask for still hasn't done a thing. It would seem that the only
remaining

>>possibility is a phone call from a Congresscritter.

>>--

>

> ABSOLUTELY contact your congresscritter. There are quite a few that

> are highly sympathetic to Amateur Radio - if you are fortunate enough to

> have one of those, you just might stand a pretty good chance of getting something accomplished.

>

> We don't get to vote on FCC personnel, so they don't feel like they are responsible to anyone other than their immediate supervisors.

>

> On the other hand, a congresscritter is supposed to be OUR employee - and sometimes they need to be reminded of that - and usually a GOOD congresscritter has a staff that is mindful of that.

>

> Go for it!

Before you "go for it" please consider:

This amounts to using political influence to circumvent the process that

the agency uses in enforcing rules. Before doing this, please consider the

idea of due process as applied to the operation of gov't agencies with enforcement power.

It may be that what appears to you to be "inaction" is the result of a determination that no actionable violation of the code of Federal

Regulations (part 97) exists. You may disagree, or want the conduct of

which you complain to be a violation, but the agency involved is charged with making the decision according to its procedures and existing rules.

Using _political influence_ to change the agency's decision _in an

individual case_ would deprive your intended victim of "due process." I don't mean to suggest that the tactic would be ineffective - it would probably work as congresscritters are notoriously unconcerned with legal niceties. I do think that it should not be used in the form suggested.

You should first be sure to exhaust all the agency administrative complaint and appeal procedures. Ask directly what these are when you ask for

information about the status of your complaint. After these are exhausted you should then turn to the courts for relief.

If you elect to pursue political action, it would seem more proper to work to get the law or the code changed so that it could be applied uniformly to achieve the result you want rather than "targeting" an individual.

I'm somewhat sensitive to this because of a now long past incident in which a person with political influence (he _was_ a congresscritter {state})
was
able to keep the FCC coming back again and again looking for some violation (any violation) so they could shut down a ham to "fix" a TVI complaint.

It seems that using political influence is a blade that
cuts both ways. We
may all be better off with due process rather than contests to
see who has
the most "influence" - especially since hams are a _small_ minority and
it
is minority rights that suffer most when due process goes out the window.

73

--

Ed Schaefer K9JMA

Date: Thu, 29 Apr 1993 20:45:49 GMT
From: swrinde!zaphod.mps.ohio-state.edu!darwin.sura.net!news-feed-1.peachnet.edu!
umn.edu!csus.edu!netcom.com!btoback@network.UCSD.EDU
To: info-hams@ucsd.edu

References <16BB5F30F.97994779@wsuvm1.csc.wsu.edu>,
<BAT.93Apr20084203@gdstech.GRUMMAN.COM>,
<1993Apr26.185220.8665@mixcom.mixcom.com>tobac
Subject : Re: Fast connect/disconnect (in/out) mobile rigs?

In article <1993Apr26.185220.8665@mixcom.mixcom.com> mei.mon
<mei.mon@mixcom.mixcom.com> writes:
>I agree. I'm beating the hell out of my Alinco DJ580's connector.
>
>Unfortunately, I do not (yet) live in the affluent low crime rate suburbs.
>So theft is a concern of mine. Which is why I started with an HT.
>
>Are there any quick connect/disconnect mobile rigs (2 meter or dual band)
>available? I'm thinking of something where the entire unit (not just the
>front panel) slides in or out of a chassis which automatically makes/breaks
>the power AND antenna connections. I would like to be able to just grab
>hold of the unit and pull. A neat feature would be a similar "back plane"
>in my condo that I could then slide it into when I get home! Any one

>make such a rig?

When I got my Standard 2m radio about ten years ago, I looked around and found something like that. I got mine from Radio Shack, and it's made for CB radios. It has six connectors, including the antenna connection. That's enough for power, RF, and audio (if you want to reroute the audio).

I bought one bracket for the car, and mounted another one on top of a 12-volt power supply that I built. I just slide the radio out of the car and slide it into the bracket mounted on the power supply when I get inside.

The antenna connection also goes through the same copper finger connectors that power and audio go through, so it's not constant impedance. If you are going to use this at 70cm, you should probably just use the antenna connection on the radio and not go through the bracket.

-- Bruce Toback

End of Info-Hams Digest V93 #518
